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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,742	10/18/2001	Gang Liu	Liu-2	7838
26345	7590	04/19/2005	EXAMINER	
GIBBONS, DEL DEO, DOLAN, GRIFFINGER & VECCHIONE 1 RIVERFRONT PLAZA NEWARK, NJ 07102-5497			YANG, LINA	
			ART UNIT	PAPER NUMBER
			2665	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/982,742		LIU, GANG	
	<b>Examiner</b>		<b>Art Unit</b>	
	Lina Yang		2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/08/2002</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Specification Objections***

1. The disclosure is objected to because of the following informalities:
  - a. Page 5, line 4, " $\lambda$ " needs to be defined;
  - b. Page 5, line 11, it appears that "and thus the MFF is remains stable", should be replaced with "and thus the MFF remains stable";
  - c. Page 5, lines 11-13, the sentence "However, the price vector  $p$  fluctuates dynamically" appears twice;
  - d. Page 6, line 4, it appears that "F in Figure 1." should be replaced with " $F_1$  in Figure 1."
  - e. It seems that "comprising:" is missing from the method claim 9 at the end of line 3.
  - f. Claim 4 line 2, it appears that "valves" should be replaced with "values"

Appropriate corrections are required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 1 recites limitation: "...at least one imposed constraint" in line 7. It's not clear from what "...at least one imposed constraint" is referring to.

Claim 1 recites limitation: "...said single commodity flow..." in lines 6-7. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation: "...wherein the step of constructing surfaces through said sample point..." in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 5 recites limitation: "...the second-derivative..." in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recite the limitation: "...wherein said at least one identifying characteristic is *commodity flow*." in lines 1-2. It's not clear how to determine a maximum single *commodity flow* for each of said paths with *commodity flow* as an identifying characteristic.

Claim 9 recites: "...the parameter  $p(t)$  influencing data flow allocation..." in lines 1-2. The parameter  $p(t)$  itself needs to be clearly defined, and how does  $p(t)$  influence data flow allocation, needs to be clearly stated.

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Claim 9 recites: "the maximum revenue flows" in line 6; "the approximate maximum flow-frontier" in line 8; "the updated market parameter vector" in line 10; there is insufficient antecedent basis for each of those limitations in the claim.

Claim 16 recites: "AMFF" in line 2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351 (a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language..

3. Claims 1-3 and 7-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Muthukrishnan et al. (U.S. Patent No. 6,377,544 B1).

Regarding claim 1, Muthukrishnan teaches: in a network having a plurality of node elements and data paths between said node elements, said paths having at least one identifying characteristic, a method of distributing data among said paths to make best use of said at least one identifying characteristic comprising:

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determining a maximum single commodity flow for each of said paths (col 4 lines 37-57);

determining a number of sample points between said single commodity flow necessary to satisfy at least one imposed constraint (capacity) (col 4 lines 37-57);

determining a value of commodity flow at each of said sample points (col 4 lines 47-57); and

assigning commodity flow to each of said paths in proportion to said at least one identifying characteristic (col 4 lines 37-57).

Regarding claim 2, Muthukrishnan further teaches that the step of determining said single commodity flow is performing using a linear programming technique (inherent because of "single" commodity).

Regarding claim 3, Muthukrishnan further teaches that the step of determining values of said sample points is performed using an iterative process (col 4 lines 56-57).

Regarding claim 7, Muthukrishnan further teaches that the at least one identifying characteristic is commodity flow (col 4 lines 37-57).

Regarding claim 8, Muthukrishnan further teaches that the step of determining number of sample points is limited to a known region (col 4 lines 37-57).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muthukrishnan et al. (U.S. Patent No. 6,377,544 B1) in view of Fleischer et al. (U.S. Patent Application No: 20030058798 A1).

Regarding claim 6, Muthukrishnan has been stated above in 102(e) rejection for claim 1. Muthukrishnan differs from the claimed invention in that Muthukrishnan does not specifically teach that the at least one identifying characteristic is price. However, it is well known in the art to use price as an identification characteristic in determining the least/minimum-cost flow in communication systems, for example, Fleischer et al. teaches how to route a commodity on a set of paths having a minimum cost. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to include using price as one of the identifying characteristics as taught by Fleischer et al. in the assembly of Muthukrishnan in order to incorporate the cost into distributing data among data paths in a network.

***Allowable Subject Matter***

5. Claims 4 and 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

6. Claims 9-19 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 9-19 are allowable since prior art of record, does not teach or suggest a method for rapid data flow allocation in a point to point network where the parameters  $p(t)$  influencing data flow allocation are changeable, said network having data paths and plurality of node elements; acquiring network information including node location, length and available paths; computing sample points of the maximum revenue flows for some interested and fixed parameters; construction of the approximate maximum-flow-frontier (MFF) utilizing the computed sample points; and obtaining the updated market parameter vector  $p(t)$  as a function of time  $(t)$ , and applying piece-wise linear approximation to construct an updated approximate MFF from parameter vector  $p(t)$ ; in addition to other limitations recited in claims 9-19.



### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chaudhuri (US Patent No. 6,411,946 B1) teaches a neural computing techniques to optimize route selection in a communication network. Hsu (US Patent No. 6,363,319 B1) discloses a method and apparatus for selecting a route for a flow from a plurality of network paths connecting a source to a destination by having a minimum of the cumulative costs. Enzmann et al. (US Patent Application No. 20040125935 A1) discloses a method of dynamically routing data based on comparative income values.

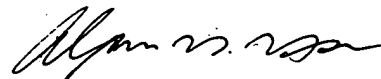
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lina Yang whose telephone number is (571)272-3151. The examiner can normally be reached on 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571)272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from the Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LY



ALPUS H. HSU  
PRIMARY EXAMINER